

Docket No.: 1422-0678PUS1
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Mikio SAKAGUCHI et al.

Application No.: 10/537,833

Confirmation No.: 8685

Filed: June 8, 2005

Art Unit: 1793

For: SPHERICAL CASTING SAND

Examiner: K. P. Kerns

DECLARATION UNDER 37 C.F.R. § 1.132

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Mikio SAKAGUCHI, declare the following:

I have read and understand the specification and claims to the above-identified application and the outstanding Office Action of March 5, 2009 (hereinafter "Office Action").

I have also read and considered the references cited therein as the basis of the obviousness rejection under 35 U.S.C. §103(a) as being unpatentable over Kobayashi et al. (U.S. Patent No. 6,054,073) (hereinafter "Kobayashi") in view of Anzai *et al.*, U. S. Patent No. 4,923,520 (hereinafter "Anzai").

The present invention greatly differs from the teachings of Kobayashi and Anzai, especially in an $\text{Al}_2\text{O}_3/\text{SiO}_2$ ratio, as clearly shown in data attached which were not included in the original specification.

EXPERIMENTAL PROCEDURES

Average particle size and spherical degree of the molding sand obtained in Comparative Example 4 (containing only SiO_2) of the present specification were evaluated in the same manner as in Examples of the present specification. The results are shown in Table I in connection with other properties (water absorption and pulverization resistance). Also, the properties of Examples 3 and 9 are shown in Table I.

RESULTS AND DISCUSSION

Table I

	Total Amount of SiO_2 and Al_2O_3 (% by wt.)	Al_2O_3 / SiO_2 / Weight Ratio	Water Absorption (%)	Average Particle Size (mm)	Spherical Degree	Pulverization Resistance
Ex. 3	98	2.7	0	0.21	0.99	119
Ex. 9	95.3	2.19	0	0.13	0.995	116
Comp. Ex. 4	99	SiO_2 Only	0.1	0.14	0.97	156

It can be seen from Table I that the molding sand obtained in Comparative Example 4 does not have a significant difference in water absorption, average particle size, and spherical degree, as compared to those obtained in Examples 3 and 9. However, Comparative Example 4 only containing silica is disadvantageous in pulverization resistance. By contrast, Examples 3 and 9 show unexpectedly superior effects on pulverization resistance. This effect can never be expected from the disclosure of Kobayashi and Anzai where silica powders are simply used. Therefore, it is suggested that it is important to specify a weight ratio of alumina to silica ($\text{Al}_2\text{O}_3/\text{SiO}_2$) of the molding sand, from the viewpoint of improving regeneration efficiency.

Therefore, the present application is never obvious over from the disclosures of Kobayashi in view of Anzai.

STATEMENT UNDER 18 U.S.C. § 1001

I hereby declare that all statements made herein of any own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001, of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Dated: May 27, 2008

Miko Sakaguchi
(insert declarant)